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CHIC (Computational Horizons in Cancer) - Perspective from the clinical side

Medicine is undergoing a paradigm shift from pheno-typing to genotyping. This is supported by systems approaches to disease, modeling and visualization technologies, and new computational and mathematical tools. An open, modular architectural framework for tools, models and services needs to be provided to design and develop hyper-models. This includes to share and handle efficiently the enormous personalized data sets, to ensure that policies for privacy, non-discrimination, and access to data, services, tools and models are implemented to maximize data protection and data security, to enable standardization and semantic data interoperability, to integrate models from system biology with VPH models, to guarantee that tools, services and models are clinically driven and do enhance decision support, to provide tools for large-scale, privacy-preserving data mining, and literature mining and to enhance patient empowerment. In addition all tools and models need to be evaluated and validated by end-users. Feedback loops to developers for continuous improvements have to be integrated. Such an innovative architecture should promote the principle of open source. All tools, models and services have to be tested in concrete advanced clinical research projects and clinical trials that target urgent topics of the medical research community. Maintenance and further developments of the framework need to be addressed. To sustain such a self-supporting infrastructure realistic use cases have to offer tangible results for end-users in their daily practice. Teaching and educational programs for end-users have to be implemented to facilitate the access to the platform and the use of tools, models and services.

Biography

Norbert Graf is Professor of Pediatrics and Director of the Clinic for Pediatric Oncology and Hematology and a Dean for students at the Faculty of Medicine of Saarland University in Germany. He is the Chairman of the Renal Tumor Study Group of the International Society of Pediatric Oncology (SIOP-RTSG). He is an Associate Member of COG (Children's Oncology Group, North America) and closely collaborating with the COG Renal Study Group. He was the coordinator of the EU funded project "P-medicine" and is enrolled in several other ongoing European projects. He has more than 25 years of experience with clinical trials.

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